

CLAIMS

What is claimed is.

- 1 1. A method of forming a current loop in a decoupling capacitor system,
2 comprising:
3 providing a decoupling capacitor between an electrical first bump and an
4 electrical second bump, wherein the decoupling capacitor includes a Vcc terminal
5 and a Vss terminal;
6 responding to a component transient in connection with the decoupling
7 capacitor, the electrical first bump and the electrical second bump;
8 directing a Vcc upwardly from the decoupling capacitor and the electrical
9 first bump toward the component; and
10 retrieving a Vss from the component downwardly toward the decoupling
11 capacitor and the electrical second bump.
- 1 2. The method according to claim 1, wherein responding to a component
2 transient includes forming a simple current loop.
- 1 3. The method according to claim 1, wherein responding to a component
2 transient includes forming a simple deflected current loop.
- 1 4. The method according to claim 1, wherein responding to a component
2 transient includes forming a simple current loop and at least one simple deflected
3 current loop.
- 1 5. The method of claim 1, wherein the component transient originates in a
2 component, wherein directing a Vcc upwardly from the decoupling capacitor and
3 the electrical first bump toward the component and retrieving a Vss from the
4 component downwardly toward the decoupling capacitor and the electrical second

5 bump, includes forming a current loop that originates in the decoupling capacitor,
6 that passes through the component, and that terminates in the decoupling capacitor.

1 6. The method of claim 1, wherein the current loop is selected from a simple
2 current loop and a simple deflected current loop.

1 7. The method of claim 1, wherein the component transient originates in a
2 component disposed in a top structure, wherein directing a Vcc upwardly from the
3 decoupling capacitor and the electrical first bump toward the top structure and
4 retrieving a Vss from the component downwardly toward the decoupling capacitor
5 and the electrical second bump, includes forming a current loop that originates in
6 the decoupling capacitor, that passes through the top structure, and that terminates in
7 the decoupling capacitor.

1 8. The method of claim 7, wherein the current loop is selected from a simple
2 current loop and a simple deflected current loop.

1 9. The method of claim 1, wherein the component transient originates in an
2 interposer disposed in a top structure, wherein directing a Vcc upwardly from the
3 decoupling capacitor and the electrical first bump toward the interposer and
4 retrieving a Vss from the interposer downwardly toward the decoupling capacitor
5 and the electrical second bump, includes forming a current loop that originates in
6 the decoupling capacitor, that passes through the interposer, and that terminates in
7 the decoupling capacitor.

1 10. The method of claim 1, wherein the component transient originates in a
2 socket disposed in a top structure, wherein directing a Vcc upwardly from the
3 decoupling capacitor and the electrical first bump toward the socket and retrieving a
4 Vss from the interposer downwardly toward the decoupling capacitor and the
5 electrical second bump, includes forming a current loop that originates in the

6 decoupling capacitor, that passes through the socket, and that terminates in the
7 decoupling capacitor.

- 1 11. A method of forming a current loop in a decoupling capacitor, the system
2 including a component, comprising:
3 providing a decoupling capacitor between an electrical first bump and an
4 electrical second bump, wherein the decoupling capacitor includes a Vcc terminal
5 and a Vss terminal;
6 responding to a component transient in connection with the decoupling
7 capacitor, the electrical first bump and the electrical second bump;
8 directing a Vcc upwardly from the decoupling capacitor and the electrical
9 first bump toward the component; and
10 retrieving a Vss from the component downwardly toward the decoupling
11 capacitor and the electrical second bump, wherein directing a Vcc upwardly from
12 the decoupling capacitor and the electrical first bump toward the component and
13 retrieving a Vss from the component downwardly toward the decoupling capacitor
14 and the electrical second bump, includes forming a current loop that originates in
15 the decoupling capacitor, that passes through the component, and that terminates in
16 the decoupling capacitor, and wherein the current loop is selected from a simple
17 current loop and a simple deflected current loop.
- 1 12. The method of claim 11, wherein the component is disposed in an interposer,
2 and wherein directing and retrieving include directing a Vcc upwardly toward the
3 interposer and retrieving a Vss downwardly from the interposer.
- 1 13. The method of claim 11, wherein the component is disposed in a socket, and
2 wherein directing and retrieving include directing a Vcc upwardly toward the socket
3 and retrieving a Vss downwardly from the socket.

1 14. A method of forming a current loop in a system, the system including:
2 a substrate including a substrate first pad and a substrate second pad;
3 an electrical first bump including a bottom end and a top end,
4 wherein the bottom end is adhered to the first pad;
5 an electrical second bump including a bottom end and a top end,
6 wherein the bottom end is adhered to the second pad;
7 a first decoupling capacitor disposed above the substrate and
8 substantially contiguous to the electrical first bump; and
9 a top structure disposed at the electrical first bump top end, wherein
10 the top structure is in electrical communication with the first decoupling
11 capacitor the method including:
12 responding to a transient in the electrical component in connection
13 with the first decoupling capacitor, the electrical first bump and the electrical
14 second bump;
15 directing a Vcc upwardly from the first decoupling capacitor and the
16 electrical first bump toward the component; and
17 retrieving a Vss from the component downwardly toward the
18 decoupling capacitor and the electrical second bump, wherein directing a
19 Vcc upwardly from first decoupling capacitor and the electrical first bump
20 toward the component and retrieving a Vss from the component downwardly
21 toward the first decoupling capacitor and the electrical second bump,
22 includes forming a current loop that originates in the first decoupling
23 capacitor, that passes through the component, and that terminates in the first
24 decoupling capacitor, and wherein the current loop is selected from a simple
25 current loop and a simple deflected current loop.

1 15. The method of claim 14, wherein the component is disposed in an interposer,
2 and wherein directing and retrieving include directing a Vcc upwardly toward the
3 interposer and retrieving a Vss downwardly from the interposer.
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1 16. The method of claim 14, wherein the component is disposed in a socket, and
2 wherein directing and retrieving include directing a Vcc upwardly toward the socket
3 and retrieving a Vss downwardly from the socket.
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